Power Reset

Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable & Resilient Power Grid

Janet Gellici, National Coal Council
NCC Webcast ~ October 1, 2018

ASSESS | SUPPORT | REFORM | RENEW
Secretary Perry’s Request

Formal request April 7, 2018 charging National Coal Council to:

... assess “opportunities to optimize the existing U.S. coal-fueled power plant fleet to ensure a reliable and resilient electricity system.”

Key question to address:

“What actions can be taken to optimize the U.S. coal-fueled power plant fleet so it can continue to provide reliable, resilient, affordable power as part of a diverse electric generation mix, and what unique benefits does coal provide?”
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Optimizing the Existing Coal Fleet to Ensure a Reliable and Resilient Power Grid
• What We Considered
  – Coal’s Unique Role in the U.S. Energy Portfolio
  – Outlook for Coal Generation
  – Measures to Optimize Diversity & Resiliency
Key Findings
Coal’s Unique Role

- The existing U.S. coal fleet provides reliable and resilient power foundation ... supports a stable, diversified energy portfolio.

- The coal fleet’s ability to dispatch power when needed provides flexibility in meeting fluctuations in demand not met by intermittent renewable energy.

- U.S. national and economic security interests are supported by the abundance of domestic coal resources ... coal fleet provides affordable, reliable electricity for residential and industrial consumers.

- Low-cost electricity enhances the nation’s competitiveness in international markets.


Resilience is “... the ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event.”

Federal Energy Regulatory Commission
Key Findings

Outlook for Coal Generation

- **U.S. power fleet** is experiencing significant and rapid changes, presenting challenges to forecasting the outlook for power generation.

- Data on coal plant retirements do not capture all market dynamics prompting plants to retire ... may be **underestimating loss** of critical generating/grid stabilization resources.

- **Regulations, staffing constraints and societal pressures** hamper efforts to preserve and optimize the existing fleet.

- Coal-fired generating capacity likely to continue to decrease barring a proactive initiative to assess and take action to compensate the existing coal fleet for the value it provides.

- **Greater transparency** is needed in the comparative analysis of fuel resource options.
Key Findings
Optimize Diversity & Resiliency

- Opportunities exist to streamline, re-evaluate and **amend regulatory and legislative measures** to enable the U.S. existing coal fleet to operate more efficiently and effectively.

- Wholesale **electricity market reform** is needed to equitably value resilience as well reliability attributes.

- Many **technology options** are available to improve the competitiveness of the existing U.S. coal fleet.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Capital Cost</th>
<th>B/C Ratio</th>
<th>B/C Ratio Rank</th>
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<tr>
<td>Circulating Water Pump Refurbishment</td>
<td>Low</td>
<td>High</td>
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<tr>
<td>Sootblowing Steam Source</td>
<td>Low</td>
<td>High</td>
<td>2</td>
</tr>
<tr>
<td>Coal Mill Inerting Source</td>
<td>Low</td>
<td>High</td>
<td>3</td>
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<tr>
<td>Add Condensate Polishing</td>
<td>Medium</td>
<td>High</td>
<td>4</td>
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<tr>
<td>HP/IP/LP Turbine Upgrade</td>
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<td>5</td>
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<tr>
<td>Coal Mills Replacement</td>
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<td>6</td>
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<tr>
<td>Boiler Feed Pump Refurbishment</td>
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<td>7</td>
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<td>Moderate</td>
<td>8</td>
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<tr>
<td>Replace Flame Scanners</td>
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<td>Moderate</td>
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<td>VFD’s for Forced Draft Fans</td>
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<td>Air Heater Overhaul</td>
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<tr>
<td>Replace Air Preheat Coils</td>
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<td>Alternate Air Heater Overhaul</td>
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The existing U.S. coal fleet offers unique benefits and value in the nation’s interests that must be valued or it will continue to erode.

National Coal Council advocates a 4-step approach:

– **ASSESS** the value of the coal fleet
– **SUPPORT** efforts to retain continued operation of the existing coal fleet
– **REFORM** the regulatory environment
– **RENEW** investment in coal generation

**ASSESS | SUPPORT | REFORM | RENEW**
Recommendation

ASSESS

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– Establish a uniform definition of grid resilience.
– Assess the fuel security of ISOs/RTOs.
– Establish quantitative metrics against which to evaluate grid resilience.
– Evaluate the experience of other nations regarding the value of firm, dispatchable power and challenges associated with intermittent renewable energy deployment.
Recommendation
SUPPORT

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– Provide appropriate economic and regulatory incentives to stem the tide of plant retirements.
– Establish an environment that values and compensates diversity.
– Support mechanisms to immediately compensate the U.S. coal fleet for the essential services it provides.
Recommendation
REFORM

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  – **Policy**: NSR, PURPA, CCR, ELG, CO2 storage on federal lands, engage on the Affordable Clean Energy plan
  – **Market**: FERC capacity reform initiatives, ISO/RTO price formation, standards for essential reliability services, fuel security and resilience assessments
  – **Taxes**: O&M expenses for coal plants, 45Q support, 48Q
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– Support the development and deployment of advanced coal technologies that enhance the competitiveness, efficiency and environmental performance of the existing coal fleet

– Promote education and awareness about the water-energy nexus

– Promote initiatives to enhance transparency about the inherent costs and benefits associated with all U.S. energy resources
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